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THE REVIVAL OF FALCONRY.

By CAPTAIN F. S. DUGMORE, H.M.'s 64TH REGIMENT.

SOME ten or twelve years ago H. H. the Maharajah Dhuleep Singh, in conversation with the writer, expressed the opinion that the revival and successful practice of Falconry in England was an impossibility; and I remember hearing my lamented friend the late Mr. E. C. Newcome, of Feltwell, express himself in almost equally discouraging terms. Probably none were better qualified to pronounce authoritatively on the subject than these accomplished sportsmen—themselves two of the most successful falconers that the nineteenth century has yet produced. So I felt there was nothing for it but to accept the adverse verdict, and to give up—for the moment at any rate—Falconry in England.

But I did *not* finally give up the fond dream of my earliest boyhood—the dream of some day assisting to remove from the musty category of "the things that were" and to restore to a recognized position among the pastimes of our day the noble old sport of chivalrous times, when *battues* of tame poultry and tournaments of doves were unknown, and when all the sports of the field were shared in, and graced by, the ladies, instead of being, as now, with but few exceptions, monopolized by the sterner sex.

I firmly believe that it is, in great measure, to the general participation of our ancestresses in the health-giving sports of the field, that we are indebted for the stalwart frames, the vigorous manhood, and the invincible pluck for which our English country gentlemen stand unrivalled; the "*mens sana in corpore sano*," which, when occasion arises, carries English gentlemen sturdily and cheerily through such little undertakings as a "Ride to Khiva."

Country-house life has greatly changed since those good old days. It remains to be seen what will be the effect on the coming race of our present fashionable modes of killing, rather than utilizing, time: the sexes separating for the day (to the no small loss of both); the gentlemen to go through the incidentless routine of the "hot corner," with its maximum of slaughter and minimum of exercise, bodily or mental; the ladies to the sofa and the latest French novel, or the barouche and the talking of scandal, the propensity of the fair sex to which is far too inveterate to be checked by aught but the presence of men. No wonder that we hear of new-fangled nervous disorders such as our ancestors never dreamed of, affording a rich harvest to the lucky inventors of "neuraline," "nervine," "zelodyne," and such like fearfully and wonderfully named compounds!

But I am getting out of my depth, and shall be pulled up by the Editor if I break out into an essay on the impending degeneracy of the British variety of the human species, and the possibility of its eventful return—by an inversion of the Darwinian process—to the Simian type; which pleasing result may some day perhaps afford an interesting subject for retrospective enquiry to the New Zealander of the remote future as he lounges on the hoary ruins of London Bridge.

To return to my subject. I gave up Falconry in England; tried France, where there is much more to be done; and then embarked with fifteen hawks and no falconer for the New World.

I had some sport—probably because I had no falconer. But military duties kept me in Canada—not a good hawking country, except for Bitterns, which are everywhere abundant, and of which I have taken four in an hour with a single Goshawk. The bitter cold of the Canadian winter and the almost total absence of visible animal life for six months in the year, are terribly against the falconer, whose happy hunting grounds in America are the western prairies, with their packs of Pinnated Grouse. The course of duty brought me again to England in 1870, since which time I have been engaged in fighting against fate, hoping against hope, attempting an impossibility—the revival of Falconry in England.

Shall I be deemed presumptuous if I say that the period has at last arrived when I feel myself entitled to claim the reversal of the weighty opinions I have quoted, and, for the first time during my career of over twenty years as a practical falconer, to pronounce that the impossibility no longer exists?

Things are wonderfully changed since the time I speak of. Ten years ago there was no Gun License Act. Ten years ago there was no Wild Birds Preservation Act. Naturally enough, the country literally swarmed with hedge-poppers. Now, to a falconer, gamekeepers are quite bad enough; still it is possible to come to an amicable understanding with them. I have never failed to do so; and, finding they have nothing to fear from my hawks, many of them become my warm supporters. In twenty years I have done but one piece of mischief—in April, 1876, an unlucky Partridge got accidentally knocked over by a falcon of mine named "Tigress." With hedge-poppers, on the contrary, it was never possible to deal, and the destruction, by a charge of shot, of every trained Peregrine was accordingly a dead certainty, sooner or later. Between the two Acts I have mentioned hedge-popping is, thank goodness, nearly extinct, at any rate during the spring, the best hawking season; though how long such will continue to be the case, if Sir Alexander Gordon gets his way, it is not easy to say. Ornithologists, sportsmen, and gamekeepers alike should have a keen eye, before it is too late, to the Bill for the so-called "Amendment" of the Gun License Act, which Sir Alexander has now before Parliament, and which, by allowing the carrying of an unlicensed gun for the destruction of hares, rabbits, and "vermin," will, if it becomes law, practically destroy the effect of the Gun License Act, or limit its restrictive operation to legitimate sportsmen only.

As all the animals specified can be much more easily and effectively "destroyed" by other means, such as trapping, netting or ferreting, than by shooting, it is clear that the Bill is simply a sop to the smaller tenant farmers and cotters, by providing their sons with a cheap excuse for poaching their landlord's and their neighbour's game, instead of attending to their proper work. Of course the gun will only be carried (and it will be carried habitually), ostensibly for the "destruction of vermin." We *ought* to know what that means by this time!

Legitimate game-preservers and sportsmen will be the great sufferers by the Bill rather than the excessive preservers, whom we have mainly to thank for the anti-game-law agitation that is becoming chronic; since the latter usually keep too large a staff of keepers to give idle hulking youths the chance of doing much mischief when loafing about with a rusty gun "looking for vermin."

For the present I fear I must count the readers of 'The Zoologist' as some of the remaining enemies from whom I have, as a falconer, most to dread; but only, of course, as regards the destruction of the sources of supply on which a falconer depends. I need scarcely say that I believe a trained hawk, with bells and jesses, is sacred with any ornithologist who has the feelings of a gentleman, *cela va sans dire;* but I fear that few such will follow the rule which is a point of honour with most men who have kept hawks, never to fire at a wild hawk. If they only knew how much more pleasure is derivable from watching the habits of the living bird than is to be gained by contemplating its motionless distorted skin (I know of but one man in England, Mr. Hancock, who can stuff a hawk properly), I should not despair of their conversion.

Here is an instance of what I mean. I notice in the October number of 'The Zoologist' an account of a male Hobby having been shot near Banbury, in Oxfordshire. That Hobby was the father of a nest that had been protected by myself and others for years. The old birds used almost daily to join my Peregrines when flying at the lure, and have often played and circled round me within twenty yards. The result of that unlucky shot was that the nest came to nothing last season, and I fear will not be used again. I only trust that a Hobby's nest I know of in a certain eastern county may continue to escape a similar fate. Fortunately Hobbies, as a rule, fly so exceedingly high, often being only discernible by using a glass and following the upturned eye of a falcon,—an invaluable ally to a true naturalist,—that without a tame hawk to attract them down, it is rarely possible to murder these lovely birds. When in Central Florida, in 1870, I was much interested to notice how similar the flight of the Swallow-tailed Nauclerus, of which I saw scores, is to that of the Hobby, though even more beautiful. Like the Hobby, it appears to feed mainly on dragonflies.

Ornithologists *will* buy Peregrines' skins, notwithstanding the mischief occasioned by the demand for them. Last summer the old birds of a Peregrine's nest on Loch Goil, which has existed for centuries and produced the finest falcons on record, were shot, and the young ones left to perish miserably by starvation. One of my falconers visited the nest just too late to save them. I believe this mischief was done for "collecting" purposes, though Scotch gamekeepers, as such, are terrible destroyers of the noble bird that is really their best friend and ally. I will not here enter upon the question whether the spread of the grouse-disease is not purely and simply attributable to the ruthless destruction of Nature's surgeon, the Peregrine, by people who think themselves wiser than Nature; but it is a fact that there are Peregrine's eyries on the west coast, the only remains round which (excepting an occasional Rock Pigeon) are those of the gamekeeper's deadliest enemy, the Hooded Crow. Much good might be done if 'The Zoologist' and 'The Field' would decline to chronicle the slaughter of hawks and to pander to the vanity of their destroyers.

The senseless rage for "British-killed specimens" of all British birds is the curse alike of the falconer and of the true naturalist. Why not have our "British" specimens flying about round us, so that we may, as lovers of Nature, watch and study their habits, instead of doing our best to complete the extinction of any species particularly rare or particularly beautiful? Surely continental skins are all we collectors—for I am a collector as well as a falconer—need require; and the fashion once changed, the supply would very soon increase to meet the demand. I know of a small marsh in France where, at the proper season, you may see two hundred Hobbies in sight at once, hawking the large dragonflies, like so many Swallows.

But I am digressing. Ten years ago there were in England, to the best of my knowledge, but three professional falconers. An attempt was made, a little later, to start a Club and School of Falconry, but no professional falconer of credit was then available. The French "Champagne Hawking Club," of which M. Werlé was the head, had to be broken up, in great measure because they could not get on with their falconer, and could not supply his place. At the present time we have in England at least nine professional falconers, of whom four are in my own service, and available to be sent with hawks (of which I have about fifty) to any suitable localities where the sport would be appreciated. It need not be thought that these four were got together without years of labour and close observation of the natural aptitude of different individuals. One I took from his work as an engineer, another as a gamekeeper, a third as odd man to an Irish squireen, and it took me just three years to trace one of them whose handiness, as a boy (under the Maharajah), I had remarked long ago, but of whom I had lost sight.

There were other difficulties ten years ago in the way of all who cared to take up falconry, but who could only do so on a small scale. Keeping hawks without a falconer was a drag and a tie. If left behind to the mercy of keepers or stable boys, during the temporary absence of their owners, they were almost certain to come to grief; while taking them about on visits did not always answer. I used to do this until I found my friends so unappreciative with regard to hawks, that if I continued this course I should have very few visits to pay! Having no falconer then, I had to choose between my friends and my hawks. I chose the latter,—to my mind, the truest friends a man can have,—but I cannot quite expect other and less enthusiastic falconers to look at things in exactly the same light as I did.

Many would have enjoyed the use of a hawk or two for the hawking season, who did not care to be bothered with them during the long period of moulting and uselessness. Yet the supply was too uncertain to make it safe to get rid of the hawks when they began to moult, as should always be done except in the case of Goshawks or special favourites. It does not pay to moult a Peregrine or Merlin, since their performances after moulting rarely come up to their first season's form.

So long as the Hereditary Grand Falconer of England, the Duke of St. Albans kept hawks (for doing—or *not* doing—which, he receives £1000 a-year from the State) it was, of course, possible to place hawks temporarily, or for the moult, under the care of his falconer, John Pells. Pells was always most obliging, and had plenty of time to attend to the wishes of amateurs, since the Duke's establishment was limited to half-a-dozen hawks, on which, including the falconer's wages, he expended only £200 a-year out of the £1000 he received and, I believe, still receives. But some ten years since the present Duke, in an economical fit, thought he might as well save a little more of the sum allowed him by the State as Grand Falconer; so, heedless of the motto "*noblesse oblige*," he broke up the establishment, and sent poor old Pells adrift (after forty-five years' service under the St. Albans family) on a beggarly pension of £50 a-year! Why do not some of our Parliamentary Reformers take measures either to induce the Grand Falconer to give *some* value to the nation for the £1000 a-year paid to him, or to reduce the amount?

This questionable action almost proved a death-blow to modern Falconry; for from that time to the formation of "The Falconry Club," which has just been started, at the suggestion, and by the exertions, of the Editor of this Magazine (to whom I gave for that purpose the use of my entire establishment of falconers and hawks), there has been in existence no central depôt to which the amateur could have recourse for instruction, for assistance in procuring hawks, or for the temporary care of them. Thus it was impossible for a beginner to take up Falconry as an occasional pursuit and in moderation. Having to provide all his own resources, he had either to let it alone, or to go into it as a regular business taking up the whole of his time—an undertaking for which few are inclined.

I am not ignoring the fact that Falconry has never ceased to be carried on during the past ten years. The Rev. Gage Earle Freeman ("Peregrine" of 'The Field'), the apostle of modern Falconry, has from time to time rendered invaluable service to the cause, and attracted public attention to it by charming articles and letters on Falconry penned in his own most characteristic and genial style, to say nothing of his separately published and important works on the subject. My late friend Mr. Ewen, of Ewenfield (Ayrshire), used to kill some three hundred grouse every year with falcons. Another friend, Major Hawkins Fisher, of Stroud Castle, has constantly done good work at Partridges and Rooks; and, that select few, the "Old Hawking Club," with their clever falconer, John Frost, have been most successful in flying at Rooks and other quarry on Salisbury Plain. Last spring I believe they killed about one hundred and eighty Rooks; and a Goshawk belonging to them took some hundred and fifty rabbits in the course of two or three months in the summer. But all of these, including the "Old Hawking Club,"—the number of members of which are strictly limited,—have been purely private establishments, of which it has been impossible for an outsider to make any use whatever.

I myself even have been compelled before now to let a season pass, through the impossibility of getting young hawks "hacked"—*i.e.*, flown at liberty for a month—without which full strength of wing is usually unattainable. I had at last to remove the difficulty by purchasing a small Lodge for this purpose in an open part of the County Limerick; but, so far as I am concerned, I might almost have spared myself the trouble, as I now seldom use any but "passage" *i.e.* wild-caught—hawks.

Ten years ago the supply of hawks fit for Falconry was so scanty and uncertain, that if a would-be falconer on a small scale chanced to lose a hawk, he had little prospect of being able to replace it during the same season; and, if he kept reserve hawks for fear of accidents, they required so much exercise as to add seriously to his work. This difficulty, scanty supply, was especially the case with regard to Goshawks; and this was particularly unfortunate, since the Goshawk is, *par excellence*, the country gentleman's hawk. The Peregrine is easily lost, and can only be used in a suitable unenclosed country, of which we have but little left, though in some districts, especially Oxfordshire, high farming is again unenclosing the country, and obliterating the hedgerows. The Goshawk can be used anywhere, even in the thickest woods, and cannot be lost without extreme mismanagement. Moreover, *one* bird (of this species) will do all the work required; fourteen or fifteen rabbits or seven or eight Pheasants, in a day, is a performance quite within the powers of this noble bird. Hares try it more severely; in fact, it is not every Goshawk that will hold a hare at all. True, the exquisite beauty of the Peregrine's flight is wanting. The flight is a comparatively straight one, though I have had Goshawks that would stoop almost like falcons; but to make up for this there is an amount of intelligence and affectionate attachment that we look for in vain in the Peregrine. It is most interesting to notice the sharp, excited, knowing way in which a Goshawk will watch every movement of its assistant spaniels in rabbit-hawking. The bird, properly treated, is as companionable as any dog; in fact, in moral qualities, it is simply a winged terrier, and if properly trained will follow its master for miles through the thickest woods. Unlike most other species, its affection is not cupboard-love; for I have known a Goshawk, after catching a rabbit, to fly to my empty fist, *bringing the rabbit with her*, and the same hawk would equally come to my fist when called after being completely gorged!

Ten years ago it was almost impossible to get a Goshawk in England at any price. Two or three were caught annually by the Dutch falconers; but with these exceptions there was nothing to be got, unless an occasional wretched-looking scarecrow, imported in a cage by the Leadenhall dealers, with every feather broken. And yet the hawk is not uncommon on the Continent; but they have to be specially sent for, or they arrive spoilt. and good for nothing.

Believing the Goshawk to be the hawk of the future for England, I have devoted no little trouble to solving the problem of a supply; and I *have* solved it. In some of the large forests in France the nests are so abundant that I have seen seven (yielding twenty-two nestlings in one season) in a square mile. Moreover, I have long had an idea that even better supplies are to be obtained from the North. Accordingly, in 1876, Lord Lilford and myself sent to Norway in the autumn to explore the haunts of the raptorial birds, in which exploration we met with complete success. In about ten days the three men (one of my falconers and two Norwegians) caught twenty-seven "passage" (*i.e.*, wild-caught) hawks—fourteen Goshawks, eleven Norwegian Gerfalcons, and two Rough-legged Buzzards. These Goshawks were nearly as large again as the French birds, besides being certainly faster, though preying almost exclusively on Ptarmigan. Ornithologists may be interested to learn that the only other hawks met with in Norway by my people were the Merlin and the Hobby (in October!). Another unfailing source of supply is Latakia, in Syria.

These wild-caught Goshawks are infinitely better and easier to manage than nestlings, which require constant attention, and go out of training so quickly as to try the temper of a beginner most terribly. It is nestlings that have earned for the Goshawk a character for sulkiness and laziness which has deterred many falconers from making use of it. A "passage" Goshawk, as a rule, is devoid of these bad qualities.

Merlins are getting gradually scarcer. They are absolutely harmless; yet the gamekeepers wage deadly war against them, and, nesting as they do on the ground, they are only too easily killed. Thirteen nests were thus cruelly and wantonly destroyed last summer in a small island off the west coast of Scotland. I do what little I can by purchasing all the young ones the keepers send me, whether I want them or not, as this encourages them to preserve the old birds; but the supply is getting less and less every year. It is a pity, for the Merlin is "the lady's hawk," being singularly gentle, and perfectly easy to train. In fact, it trains itself; the mistake beginners make is in thinking a Merlin requires training at all. I rsmember when I was a beginner I was told by an experienced falconer (Mr. Charles Holford), "My dear fellow, it is *you* that want training, not the hawk." And he was right. The great drawback with Merlins is that they are practically useless after October, when the Lark-hawking ends, and should then be given their liberty. I fear these little hawks too often fall victims to misplaced confidence. They often, when in a wild state, play round the falconer like Hobbies; and the Merlin seems to have such an instinctive love of sport, and such a trusting confidence—such a feeling of good-fellowship—towards the sportsman, that it will accompany him for hours when beating a Snipe-bog. For myself, I should be sorry to make a friend of the person who not long since wrote to 'The Field' to boast of having wantonly slaughtered one of a pair of Merlins that were thus following him on Dartmoor. When Merlins follow the gunner in this fashion it may often be with an eye to the chance of his putting up a Lark, their natural quarry, for them. But this is not always the case, I think, since wild Merlins have often followed me, and settled on the ground close to me when I have been exercising Goshawks on unlikely ground for Larks.

For Sparrowhawks I dare not say much. No hawk will do so much or such good work when properly trained. It is extremely plucky—one of mine pulled down a Rook after a long flight; but it is, without exception, the hardest hawk to manage that a beginner could select, especially if a nestling; and in a game country, as a wild bird, it is certainly most mischievous. If a Sparrowhawk once discerns a coop with a lot of tame-bred young Pheasants, not one of them will escape while the hawk has its life and liberty, though I do not think it is nearly so mischievous to young game naturally reared, constantly shifting quarters, and clever at concealment. Even in my own case, lover of hawks though I am, I must confess that a Sparrowhawk passing within range of me when covert-shooting on a friend's property gives rise to a sharp internal conflict between my duty to my friend and my duty to Falconry. Fortunately for my peace of mind, the hawk usually takes advantage of the few seconds' grace thereby arising, to make himself scarce, and thus saves me the pain of having to reconcile conflicting duties. Otherwise I fancy I should fire, to save appearances, and as a compromise—but probably wide, to save my feelings!

Harriers and Buzzards, especially the former, are the hawks for whose misdeeds the noble and comparatively harmless Peregrine too often suffers. With poetic justice, Peregrines can be trained to take them, and a very fine flight it is. Normandy is the country for this sport, which one of my falconers has also carried out successfully at Chalons. Good riders are needed, as the Peregrine gets sadly mauled in the struggle on the ground unless aid is forthcoming.

A Kestrel, too, affords a very pretty flight; but I scarcely like to fly a tiercel at it in the open country where the flight will end in a kill, as it seems a shame to destroy this little hawk—the farmer's best friend. I once took thirty-nine caterpillars out of the crop of a Kestrel, though the mischievous field mice constitute its more usual food.

I think I have said enough to prove that, after twenty years' labour in the cause, I am at last justified in pronouncing the Revival of Falconry in England to be no longer hopeless. It is, I firmly believe, now *possible:* whether it is *probable* must depend mainly on others.

Personally, I can do little more. Military duties leave me neither opportunity nor leisure to enjoy the sport as I used to do in the happy days of old when, unassisted, I trained and worked all my own hawks. But others are welcome to the result of experience and heavy outlay. I can assure them that my experience, quite apart from my present hawking establishment (which is no trifle!) has been very dearly bought, though I trust not bought in vain.

A very few words will suffice to sum up briefly the advantages we now possess over those we had ten years ago.

We are comparatively free from the scourge of hedge-poppers. Long may we remain so!

We are no longer at the mercy of one professional falconer, and dependent on his good or bad conduct.

We are no longer dependent for supplies on bird-dealers (an untrustworthy fraternity, as a rule), who import the hawks in such bad order as to be practically useless.

And lastly, private enterprise having at length filled up the gap caused by the Duke of St. Albans' parsimony and neglect to provide what he is paid by the State for providing—public hawks—we have now a Central Depôt and School of Falconry, with an ample staff, at the service of all who wish to try their hands at the noble art, however little time they may have to devote to its practice. This result has not been attained without very heavy sacrifices; in return, may I bespeak one kind thought for the promoters of the Revival of Falconry from every reader of 'The Zoologist' whenever he may see temptation, in the shape of a hawk of any kind used in Falconry, within range of his deadly breech-loader!

THE LAND AND FRESHWATER MOLLUSCA OF SUSSEX.

By the Editor.

The Lists of Land and Freshwater Mollusca which have from time to time been prepared by conchologists in Sussex have reference, for the most part, to restricted areas in the county, or to the particular localities in which the authors of these lists reside. So far as we are aware, no general catalogue for Sussex has been published; and in the following pages, therefore, an attempt will be made to supply a want which may possibly have been experienced by conchologists, not only in Sussex, but in other parts of the country. At the same time it is hoped that a catalogue, such as the present, may be the means of suggesting to many readers of 'The Zoologist,' and to their friends, a new field for research, or at all events of directing their attention more particularly to a branch of Natural History which upon investigation will be found to possess much attraction, and which, at present, scarcely receives that attention which it deserves.

In the preparation of this catalogue the Editor has been assisted by several friends in Sussex, to whom he desires to express his obligations, and has availed himself of the information contained in all the local lists for Sussex which he has been able to procure. The principal sources of information may be briefly stated to be the following:—

1. A MS. List of the Land and Freshwater Mollusks of Sussex, by William Borrer, Esq., of Cowfold, Horsham, from

observations made chiefly in the western division of the county.

2. Mr. Weaver's account of the Mollusca to be found in the parish of Harting, near Petersfield, contained in Mr. Gordon's recently published work, 'The History of Harting,' pp. 307—323.
3. "A Season's Collecting of Land and Freshwater Shells in West Sussex," by William Jeffery. Published in 'The Zoologist' for 1868, pp. 1215—1217.
4. "A List of Land and Freshwater Mollusca which have been met with in the Neighbourhood of Brighton," published in Merrifield's 'Sketch of the Natural History of Brighton' (1864, p. 223).
5. "A List, with Notes on the Habitats and Localities, of the Land and Freshwater Mollusks observed in the Vicinity of Lewes, in Sussex," by W. C. Unwin, Esq. Published in 'The Naturalist' for 1853, vol. iii., pp. 54—58.
6. A List of the Mollusca which have been found in the neighbourhood of Eastbourne; prepared, with other provisional lists of the Fauna and Flora of the District, by a Committee of the Natural History Society of Eastbourne, and published in Gowland's 'Guide to Eastbourne,' 8th edition.
7. The Editor's own notes of species collected, or identified, in excursions made in different parts of the county during the last fifteen years.*

The letters B, W, J, M, U, G, and H, which will be found appended to observations throughout the catalogue are the initial letters of the writers' names above mentioned, and indicate the authority for the various statements to which they are appended. The systematic arrangement is that adopted in the first volume of Mr. Gwyn Jeffreys' 'British Conchology.'

I. TERRESTRIAL MOLLUSCA.

UNIVALVES (*GASTEROPODA*).

Fam. LIMACIDÆ

Arion ater. The Black Slug.—Found in the neighbourhood of Horsham, Cowfold, and West Grinstead, where black, white and red specimens have been met with, though rarely.—B. Harting, near Petersfield.—W. Brighton.—M. Common in the vicinity of Lewes.—U. "By many persons of easy belief," says Mr. Weaver,* "this slug is thought to be endowed with a valuable property, in which may be found a slight compensation for its depredations. In the destruction of warts on the human skin, it has the credit locally of having been eminently successful long before the application of acetic acid to this purpose. The living slug, after having been carefully rubbed over the parts affected, is to be securely impaled on a thorn in some secluded place, and there left to die. If, from the commencement of the experiment, the warts do not gradually become fine by degrees and beautifully less, until they finally disappear, the operator has failed in one or other of the two conditions indispensable to success—implicit faith or strict secresy!"

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* Some of these have already appeared in 'Rambles in Search of Shells,' published by Mr. Van Voorst in 1875.

Arion hortensis. The Garden Slug.—Common everywhere. The eggs are phosphorescent for about a fortnight after they have been deposited, and may be seen in the evening on moist hedge-banks, giving out a pale light.

Limax marginatus. Sowerby's Slug.—Common in the Weald, and found also on the South Downs. Not uncommon about Henfield, and at Hassock's Gate, near Hurstpierpoint.—B. It may be looked for under stones, among dead leaves, and at the foot of old walls. It is of inactive habits, and secretes a thick slime. The Abbé Stabile has observed that it is much preyed upon by large carnivorous beetles, and Mr. Gwyn Jeffreys adds† that in its turn it preys upon live worms and smaller slugs.

Limax flavus. The Yellow Slug.—Found occasionally at Chichester, Cowfold and Henfield (B); at Harting (W and H); at Brighton (M); and near Hailsham (H). Specimens have also been met with by the side of a ditch near the Priory, Lewes.—U. To be looked for in damp places, as cellars and drains, and under stones in moist situations and about decaying stumps in the woods.

Limax agrestis. The Field Slug.—Abundant everywhere; the pest of the farmer as well as of the gardener. It may be met with in the cornfields in such abundance that even the willing Rooks and Pheasants find it no easy task to keep its numbers within safe limits. It is a favourite morsel with the Hedgehog, and furnishes food also to the Blindworm (*Anguis fragilis*).

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* 'History of Harting,' p. 312.

† 'British Conchology,' vol. i., p. 132.

Limax maximus. The Great Slug.—Generally distributed, frequenting outhouses and cellars in damp situations. It has been known to enter larders and feed on raw meat.* In woods also it is not uncommon, and is fond of creeping on the trunks of trees on wet nights, and on sugar, when placed there to attract *Lepidoptera.*—B.

It is somewhat curious that none of the Sussex conchologists have included in their lists the Shell Slug, *Testacella haliotidea*, which is apparently not found on the chalk soil or sand, although it is not very uncommon on the London clay.

Fam HELICIDÆ.

Succinea putris. The Amber Snail—so called from the colour of the shell—is to a great extent amphibious. It is not uncommon in ditches overgrown with herbage, and appears especially partial to the stems of *Œnanthe crocata.*—B.

Succinea elegans. The Slender Amber Snail.—In similar situations, but rarer. Taken at Henfield, and dead specimens found amongst the *rejectamenta* of the floods in the level between Henfield and Steyning.—B. Included, under the name *Succinea Pfeifferi*, in a list of Mollusca found in the neighbourhood of Brighton (M), but not at Eastbourne (G). By some conchologists the two species have been considered to be mere varieties of the same species, great variability of form being observable in all the species of the genus *Succinea;* but *elegans* differs from *putris* in the darker colour of its body, and the more slender shape of the shell, as well as in its longer and more pointed spire. In 'The Zoologist' for 1862 (pp. 8138 and 8171), Capt. Bruce Hutton has recorded some interesting observations on *S. elegans*, which lead him to consider it a distinct species. He found it in some abundance on leaves of the yellow iris.

Vitrina pellucida. The Transparent Glass Shell.—Abundant on the clay on and under dead sticks and leaves in hedge-bottoms and woods. Less common on the sand. It appears very indifferent to cold, often crawling about in the severest frost.—B. Specimens have been obtained at Ratham, near Chichester (J), amongst moss in Ashcombe plantation and elsewhere near Lewes (U), and in the vicinity of Brighton (M).

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* See 'The Zoologist,' 1861, p. 7819.

Zonites cellarius. The Cellar Snail.—Not uncommon in cellars, drains and sculleries, and under tiles or loose bricks about houses. The shell is thin and brittle, but very glossy and semitransparent, and of a yellowish or brownish horn-colour· It is not confined to the neighbourhood of houses, but is found also in woods and hedge-bottoms.

Zonites alliarius. The Garlic Snail.—In similar situations to the last named, but less common. It has a darker and more solid shell, and has a strong smell of garlic, especially when irritated. This peculiar smell, however, varies in intensity, and is sometimes hardly perceptible even when the animal has been much provoked. Two specimens, procured in the vicinity of Lewes, were determined only by comparison, there being no smell of garlic present.—U. It is stated to be rare in the neighbourhood of Brighton (M), and has not been met with at Eastbourne (G).

Zonites nitidulus. The Shining Snail.—Common in similar situations with the two last named.—B. Specimens have been collected at Ratham, Chichester (J), Brighton (M), in a shaw near Kingston, and in Ashcombe plantation, Lewes (U), and in the neighbourhood of Eastbourne (G). The shell differs from that of *Z. cellarius* in being smaller, and in having one whorl less, the spire more raised, and a much larger and deeper umbilicus. Its surface is also much less glossy.

Zonites purus. The Clear-shelled Snail.—Sparingly distributed under stones and amongst the roots of grass and moss.—B. In the neighbourhood of Lewes it is considered rare, but specimens have been collected on a bank in Ashcombe plantation.—U.

Zonites radiatulus.—The Little-rayed Snail.—Met with under stones and dead wood, and amongst leaves in woods, but not common.—B. Found with *Z. nitidulus* near Kingston and in Ashcombe plantation, Lewes.—U.

Zonites nitidus. The Glossy Snail.—Specimens have been procured in the neighbourhoods of Chichester (J) and Brighton (M). In the vicinity of Lewes it is occasionally found by the ditches in the Levels.—U.

Zonites excavatus.—A single specimen under dead fir bark in St. Leonard's Forest.—B.

Zonites crystallinus. The Crystalline Snail.—Under stones and dead wood and amongst the roots of grass in open places. "Not abundant, but found both in the Weald and on the South Downs."—B. This minute species, inhabiting a transparent shell with a high polish, together with the Top-shaped or Fulvous Snail, to be next mentioned, is found under stones and moist decaying leaves in the upland and lowland covers, hedgerows, gardens and pastures in the neighbourhood of Harting.—W. On the Downs at Lewes it is said to be not uncommon, in company with *Helix pulchella*, amongst earth at the roots of grass.—U. It has been met with also at Brighton (M), and in the vicinity of Eastbourne (G).

Zonites fulvus. The Tawny Snail.—Found in similar situations to the last named.

Helix aculeata. The Prickly Snail.—The distinguishing character of this little shell, which measures about the tenth of an inch in breadth, is that the epidermis with which it is clothed rises at frequent and regular intervals in the middle of each whorl into sharp teeth or points, so as to present under a lens the appearance of a very elegant spiral of bristles. It is met with not uncommonly under fragments of chalk and among decaying leaves under beech trees.—W. Mr. Gwyn Jeffreys has observed that it walks with its shell erect, carrying it in the most graceful manner, and often ascends trees, particularly the alder. In the autumn it is said to use the falling leaf as a locomotive to reach the ground.

Helix pomatia. The Edible Snail.—In a copse upon the Downs in West Sussex, not far from Petersfield, one or two dead shells have been found, from which it may be assumed that this species formerly existed in that neighbourhood, but no living examples have been met with in recent times. A friend in that neighbourhood, however, turned out fifty or sixty live specimens, but the experiment to establish them in the new locality failed.—H. Mr. W. Jeffery, of Ratham, near Chichester, writing to the Editor in January, 1874, says:—"Many times have I searched for *Helix pomatia* on our Downs, but always without success. Some five or six years ago I had between thirty and forty sent me from the Surrey Downs, a part of which I turned down in my garden, and the remainder on a bank of light soil near. Of those on the bank I saw no more, but those in the garden seemed to do pretty well for a time, and at least one brood of young were hatched, some of which attained the full size. Now, however, the old stock is no more, and last summer I only saw two of those bred in the garden. These are of a much darker colour than the imported specimens, and in their earlier stages of growth led me to think they were hybrid with *H. aspersa*. In the garden *H. pomatia* is not nearly so destructive as *H. aspersa*, preferring, as a rule, decaying vegetation; a yellow half-rotten and thin glutinous turnip-leaf is a particularly favourite morsel with them." With regard to the name "Apple Snail," which is sometimes applied to this species, it may be appropriate as regards its shape, or with reference to the animal's *penchant* for apples; but the word "*pomatia*" is derived from "πωμα," an operculum, and not from "*pomum*," an apple.

Helix aspersa. The Common Garden Snail.—Generally dispersed, but much less common on the clay than on the sand and chalk. Near the sea a pale variety is very common, and specimens of a pale yellowish green have been met with inland at Cowfold.—B. A curious circumstance is related in Merrifield's 'Sketch of the Natural History of Brighton' (p. 157), which proves that rats are as fond of snails as some of the human race, and are quite as ingenious in capturing them. The facts were thus narrated to the author by Mr. W. W. Attree, of the Queen's Park:—"While my father was building this house (the villa in Queen's Park), the gardens, laid out beforehand, were colonized on a sudden by crowds of rats. That they should travel half a mile from the town was not strange, but there was no inhabitant near the unfinished walls, and apparently nothing more to tempt their visit than when the spot was a bare hillside. The workmen said that the rats came for the new plastering; but that, if possibly a *bonne bouche* in a rat's diet, could not, it seemed to me, support them. Besides they could scarcely have eaten it without their depredations being discovered by the workmen, and this did not take place. While still wondering about the matter, I one day watched a rat come out of his hole at the foot of a mound in the back garden, go some paces without perceiving me, climb the stalk of a hollyhock, clear off several snails, bring them down in one paw like an armfull, and run with them on three legs into his hole. On examining this hole, and others as well, I found the inside strewed for some distance with broken snail-shells. At that time there was about the place a great variety of snails with delicately coloured shells of different sorts.

I fancy they have been cleared off by the pea-fowls who regularly hunt the ground, the pea-hen quartering the ground like a pointer. We have hardly any except the common brown snail now left. I looked among the *débris* round the rats' hole, to see if they had chosen any particular kind of dainty snail, as the Romans did, and some moderns have done, but the broken shells were almost all those of the common brown snail, with only a coloured one here and there amongst them."

Helix nemoralis (The Wood Snail), with a dark lip, and *Helix hortensis*, with a white lip.—Generally dispersed and abundant everywhere. It has long been a question with conchologists whether these two forms are distinct species. Linnæus united them. Müller separated them. In modern times, Forbes and Hanley agree with the former, Gray with the latter. Mr. Gwyn Jeffreys says the variety *hybrida* seems to connect the two, and he regards *nemoralis* as the type, and *hortensis* and *hybrida* as local or casual varieties of one and the same species. In the neighbourhood of Chichester *nemoralis* is found on the Downs amongst juniper-bushes and furze; *hortensis* is most common in the hedgerows in the lowlands. The two forms are not found living together.—J. and H.

Helix arbustorum. The Shrub Snail.—Local. On bushy banks about Henfield and other localities on the sand. Not met with on the clay.—B. Found plentifully among nettles by the roadside and near water in the village of South Harting, and elsewhere in the valley, but not met with on the hills, although in other localities it is said to occur at a great elevation.—W. By the side of the "Cut" near Landport it is not uncommon (U), and is included amongst the species found in the neighbourhood of Brighton (M). It is omitted, however from the Eastbourne list.—G.

Helix cantiana. The Kentish Snail.—Abundant on the chalk and clay; less so on the sand.—B. Not uncommon on the wild plants growing in hedgerows about Harting (W), and on the hill as well as in the valley (H). One of the commonest shells about Ratham; every hedge abounds with it.—J. It occurs at Eastbourne and Brighton, where it is common (M), and in the neighbourhood of Lewes is found on nettles at the foot of the Downs (U).

Helix Carthusiana. The Carthusian Snail, so called from its having been first discovered near a Carthusian Monastery.—A local species. Found amongst stunted grass on Mount Cabourne, near Lewes, and on Ranscombe Brow.—U. Also between East Blatchington and Seaford. A colony existed for some years at Cowfold, probably introduced with chalk, as it is now extinct. With this exception, not seen off the chalk.—B. Mr. Gwyn Jeffreys gives the habitat as "on grass and herbage in the hollows of the Downs on the Kentish and Sussex coasts."

Helix rufescens. The Rufescent Snail.—Very abundant on the chalk and sand; less so on the clay.—B. In the vicinity of Lewes observed to be plentiful in nettles, and after the summer rains on the various species of *Rubi.*—U. About Chichester it is common in gardens and hedgerows (J), and is equally plentiful around Eastbourne and Brighton (G and M).

Helix concinna. The Neat Snail.—On nettles in an old chalk quarry at Offham, near Lewes. Also at Bignor.—U. Mr. Borrer regards this as a variety of the next species.

Helix hispida. The Bristly Snail.—Generally distributed, and common under chalk-stones.

Helix sericea. The Silky Snail.—Specimens of a *Helix,* believed to be of this species, found occasionally at Cowfold and Henfield, under stones and pieces of board.

Helix fusca. The Dusky Snail.—Noticed as rare in the vicinity of Brighton.—M. Two specimeas found in Warrinson Wood, near Lewes.—U. Mr. Gwyn Jeffreys gives the habitat as "Woods, on young trees, and among nettles and dog-mercury."

Helix virgata. The Zoned Snail.—Abundant on the chalk on the whole line of the South Downs, and noticed also in several places on the railway banks, whither it was probably brought with chalk. A black variety with reddish brown bands has been met with, and another transparent milk-white with cream-coloured bands.—B. The species is common along the coast by Newhaven and Seaford, clustering thickly on the stems of marine plants. The markings vary considerably in individuals, and the sea-side specimens are much finer than those found inland.—U. On thistles, nettles and herbage on the sheep-walks on East and West Harting Downs, Hemner and Torbury.—W and H. A variety met with on the Downs near Chichester, and in Kingly Vale has "a dull creamy-coloured shell, with the purple lip distinct."—J.

Helix caperata. The Wrinkled Snail.—Differs from *virgata* in its much smaller size, depressed spire, and larger umbilicus, and especially in the numerous rib-like striæ which hoop round each whorl. Very common on the Downs in autumn, and said to yield "a very fattening nourishment" to the sheep, which pick them up with the short grass to which they cling.—H. This snail is very partial to clover-fields, and is a favourite morsel with the Land-rail.—B. It is most active, and therefore more generally noticed after rain.—H.

Helix ericetorum. The Heath Snail.—Abundant on the chalk, to which, in Sussex, it appears to be confined. The flat shape of the shell, its large umbilicus, and nearly circular mouth readily serve to distinguish it from any other of the banded snails. The village children in Sussex collect them by bushels, and threading them on strings, make necklaces and bracelets of them. Mr. W. Jeffery has remarked that *ericetorum* attains a larger size in the valleys on the north side of the Downs, where the herbage is less scanty than on the south side, and the sun has less power.

Helix rotundata. The Rounded Snail.—Common under chalk-stones, dead wood, and bark of old trees, as well as in moss and among dead leaves.

Helix rupestris. The Little Wall Snail.—Found on rocks, walls, and ruins, as well as under stones on hill-sides. Rare in Sussex. Specimens found on the north side of the churches at Horsham and Keymer, and on an old wall at Lewes.—B.

Helix pygmæa. The Pigmy Snail.—Abundant under stones on the South Downs, and sparingly under dead wood and leaves in the neighbourhood of Cowfold.—B. Not very common near Lewes, but found with other minute land-shells at the roots of grass and moss, principally *Hypnum purum* and *lutescens.*

Helix pulchella. The White Snail.—Not uncommon under fragments of chalk in Uppark and on East Harting Down.—W. and H. Plentiful on the Downs by Lewes, at the roots of grass and moss, and on the east bank of Ashcombe plantation.—U. On old walls, amongst old mortar and heaps of stones, about Horsham, Cowfold and West Grinstead.—B. Found also in the neighbourhood of Brighton (M) and at Eastbourne (G).

Helix lapicida. The Rock Snail.—About the size of *ericetorum*, but much more solid, lens-shaped, of a dark brown colour, and with a sharp edge or keel round it, which distinguishes it at once from all others of its kind. The crevices of rocks and old walls are favourite situations for this snail; but as it is rather inactive by day, the best time to look for it is at twilight, or after a shower of rain. The inappropriate name *lapicida* was bestowed upon ii by Linnæus, under the mistaken impression that it bored or excavated calcareous rock, as the *Teredo* does wood. This is one of the very few instances in which a species has been inaptly named by that most remarkable and observant of naturalists. It is a local species in Sussex. Specimens have been met with on old walls and under leaves at Cowfold, Henfield and Lindfield.—B. In the neighbourhood of Ratham, near Chichester, not uncommon on the trunks of beech trees.—J. At Uppark it is often found in wet weather ascending the smooth trunks of the young beech trees.—W. At Kingly Vale also numerous specimens were found on ivy-covered trees, and clinging to the under side of the ivy leaves.—H. It is not included in the lists from Brighton and Eastbourne.

Helix obvoluta. The Cheese Snail.—So called from its shape, which resembles a little flat cheese. It is of a reddish brown colour, thickly studded with short hairs. The mouth, which is rose-coloured, and thus quite different to that of every other British species of *Helix*, is closed during the period of hybernation with a thick calcareous epiphragm. The species is a very local one, and, except in a few favoured localities, must be regarded as rare in Sussex. As an inhabitant of Ditcham Wood, near Buriton, it was discovered by Dr. Lindsay, at one time a resident in the neighbourhood. It has since been found at Ashford Wood and Stonor Hill (Rev. W. H. Hawker); Crabbe Wood, near Winchester (W. A. Forbes); Uppark (Weaver); Kingly Vale, near Chichester (W. Jeffery); Duncton (Godlee); Elsted (Miss Buckland); and in a "hanger" on the north side of the South Downs at Springhead, near Storrington (Borrer). It is generally found amongst moss at the roots of hazel, and, after rain, on beech trees at some height from the ground. It is not included in the lists of Mollusca of East Sussex.

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A CATALOGUE OF WORKS AND ARTICLES RELATING TO THE ORNITHOLOGY OF FRANCE.

By Howard Saunders, F.L.S., F.Z.S.

During a recent residence of some months in France I endeavoured to compile a list of the various treatises upon the provincial and local Ornithology of the country; and the present is a Catalogue of all the published works on the subject of whose existence I am aware. It should be borne in mind that it embraces only works relating to France (including Alsace and Lorraine), and makes no pretension to being a catalogue of French ornithological literature. For a knowledge of many of the minor treatises I am indebted to my friend M. Clement, of Nîmes, and I think that some of my readers will be surprised at the number of works which have been published in France on the subject of Ornithology.

The question of arrangement presented considerable difficulty, for few Englishmen know where many of the smaller Departments are situated; but as the great point is to be able to refer to the authorities upon the *district* respecting which information is required, I have taken the old *Provinces* as a *basis*, and commencing with the Département du Nord, in the Province of Flandre, working round by the coast, west and south, as far as the Pyrenees; thence eastward and north, bringing in the central and composite Departments in the way which seemed most practicable.

To facilitate reference, the names of the Departments, and occasionally those of the places of publication, where the latter are better known to the English reader, are printed in *italics*.

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Demarle; Tab. des Oiseaux observés dans le *Boulonais*. (Prècis de l'Hist. Phys., &c., de Boulogne-sur-Mer et ses environs, tom. i. & ii. Boulogne, 1854.)

Baillon; Catalogue de Mamifères, Oiseaux, Reptiles et Poissons des environs d'Abbeville (*Somme*), 1833.

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Hardy; Catalogue des Oiseaux observés dans la *Seine-inferieure*. (Annuaire de l'Association Normande pour 1841.)

Lemetteil; Catalogue raisonné des Oiseaux de la *Seine-inferieure.* Rouen, 1874, 2 vols.

Lesauvage; Catalogue méthodique des Oiseaux de *Calvados.* Caen, 1837, 4to.

Chesnon; Essai sur l'histoire naturelle de la *Normandie.* Bayeux, 1835, 1 vol., 8vo.

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Nourry; Catalogue des Oiseaux de la *Normandie.* (Bulletin de la Société des amis des Sciences naturelles de Rouen.)

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Bureau, Dr. Louis; *Aquila pennata,* d'après des observations recueillies dans *l'Ouest de la France.* (Association française pour l'avancement des Sciences. Congrés de *Nantes,* 1875.)

„ Idem. (Bulletin de la Société Zoologique de France, 1876, p. 54.)

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Docteur, A.; Catalogue des Oiseaux de la *Gironde.* Bordeaux, 1856. 8vo, 48 pp.

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„ Indicateur de Maine et Loire. 3 vols., 8vo. 1850.

Nouel; Catalogue des Oiseaux observés dans le *Loiret*, par M. Nouel, Directeur du Musée d'Histoire Naturelle d'Orleans. (Extrait des Memoires de la Société d'Agriculture, Sciences et Belles-lettres d'Orleans.)

Besnard, A.; Nouvelles acquisitions de la Faune de la *Sarthe*. (*Turdus varius*, Pallas, &c. Bulletin de la Société Zoologique de France, 1876, p. 83.)

The following are general works on the Ornithology of France:—

Gérardin; Tableau élementaire d'Ornithologie, ou Histoire Naturelle des Oiseaux que l'on rencontre communement en France. Paris, 1806. 2 vols., 8vo.

Vieillot; Faune française; Oiseaux. 1 vol., 8vo. Paris, 1821-28.

Braguier; Histoire Naturelle ou élémentaire de la Faune française (Mam. et Oiseaux). Paris, 1839.

Degland; Catalogue des Oiseaux observés en Europe, *principalement en France, et surtout* dans *le Nord du Royaume*. 1 vol., 8vo. Lille, 1839.

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OCCASIONAL NOTES.

LONGEVITY IN THE DOG.—A Pomeranian Fox Dog, or "Loup-loup," died last December, within a quarter of a mile of my house, at the age of nineteen years and a month. The father of this dog lived fourteen years, and the daughter fourteen and a half years. I only mention the two latter on the assumption that longevity in dogs may run in families. I am anxious to elicit from your readers whether the age of the longest lived of the three is very exceptional, and also whether I am right in my "family" supposition. The dogs above mentioned were the property of Miss Young, of this place, and the ages can be authenticated.—WILLIAM H. HEATON, (Meadow Croft, Reigate).

DIFFERENCE IN MODE OF FEEDING IN THE RABBIT AND THE HARE.—I was recently told by a Suffolk farmer, who has always been a good sportsman, and more or less an observer of facts connected with natural history, that you may generally tell whether your turnips are nibbled by hares or rabbits by the difference in their mode of attacking the roots. A hare will bite off the peel, and leave it on the ground; a rabbit will eat "peel and all." I do not know whether this can be corroborated; if so, it is an interesting and might prove a useful fact.—H. MILLER (Ipswich).

THE MIGRATION OF BIRDS IN AUTUMN.—It may not be generally known that immense flocks of Larks arrive in this country during the autumn from the north of Europe. I have fallen in with them daily about the middle of October, when steaming in the North Sea, many miles from land, flying direct for the Norfolk and Suffolk coast. They usually keep company in compact bodies of several hundreds, but now and then a few, fatigued by the journey, would follow for a short distance, and then settle on board, where they would creep into the first quiet corner, and, puffing themselves out like little balls, would soon be at rest. Larks are by far the most numerous of all the birds taken on board the light ships off the eastern coast, immense clouds being reported to have been often noticed hovering round the lamps during a drizzling rain. After these come the Starlings,* and then the Stormy Petrels. The latter, however, do not strike the lights, but settle on the vessels by day during protracted rough weather; they are then generally so thoroughly worn out that, if thrown up in the air, they will immediately return on board. Gulls occasionally come in contact with the lamps, but it is by no means common for any species, except the Skua Gull, to be taken in that manner. I was informed by the mate of the 'Newarp' that he had once found as many as three Skuas on deck during his watch, one of which, a large brown-coloured bird (probably the Great Skua) that he mistook in the dark for a fowl, as it was lying disabled in a corner, inflicted a most severe bite on his hand. From all I could learn, the species usually taken were either immature Pomarine or Arctic Skuas. Hawks and Owls are sometimes captured on board, but they are mostly observed before dawn, perched on some part of the rigging near the lamps. On one occasion the glass of the lights of the 'Newarp' was found broken, and a duck of some kind, that the crew were unacquainted with, was discovered inside the lantern. Grey Geese, Mallard, and various sorts of wild fowl, used now and then to be obtained, but from all I could hear the numbers of these birds have diminished greatly of late years. Snipe were stated to be among the commonest captures, but during the whole of the winter I only received a single specimen of this species. Woodcocks are supposed by the light-keepers to be particularly swift-flying birds, as they are generally picked up on deck, much cut and injured by striking against the lamps or rigging. The real cause of such mishaps must, I should imagine, be attributed to the weighty condition of the bird at the time of the accident. I found that the Knot was well known as being of frequent occurrence. They were described as flying in large bodies, and numbers falling at once on deck, One of the men declared that the last flocks of these waders that he had observed had suddenly shied when close to the lantern, and that but one or two had been taken. It is stated that many years ago over one thousand birds were one morning collected on board the 'Newarp.' Whether this was really the case or not, I do not pretend to say, but all my information agreed in the fact that there was every year a great falling off in the number of birds so taken. I afterwards learned from an old man, who declared he was on board at the time, that the above statement was perfectly true. He also added that six hundred of the birds, which were principally Larks, were put into one gigantic pie. I have a slight recollection of seeing an account of this fact in some paper, which published the history of the light-ships of the eastern coast. A fall of snow, and a cold wind from the north-west, is certain to bring enormous flights of Larks and other birds along the south-coast; all appear intent on making their way from east to west, occasionally passing in continued streams from daylight till dark. The Larks are usually the first birds to show, a slight covering of snow being sufficient to move them, while it requires a few days' continuance of severe weather before Fieldfares, Redwings, and Blackbirds appear in any numbers. At such times the whole of the bird-catching fraternity of Brighton are engaged in the work of destruction. Should a strong cold wind from the north-west be blowing, the course of the birds is close to the ground, and thousands are captured in the nets. There is considerable competition for what are considered the best pitches, numbers of men leaving Brighton shortly after midnight, and depositing their packs on the ground they intend to occupy, to reserve the spot; they seek what shelter they can till daylight behind some bank or stack. From thirty to fifty dozen are commonly captured, and the takes not unfrequently reach as high as eighty dozen. I have myself seen over two hundred clap-nets at work on a favourable day; and, as scores of drag-nets are out as soon as dusk sets in, some idea of the number of birds caught may be formed.—E. T. Booth (Dyke Road, Brighton).

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* The first thousand wings that I received during the autumn of 1872 were made up as follows:—Larks, 520; Starlings, 348; Stormy Petrel, 45; Brown Linnet, 15; Greenfinch, 21; Brambling, 6; Fieldfare, 2; Fork-tailed Petrel, 1; Knot, 2; Blackbird, 20; Redwing, 13; Chaffinch, 15; Tree Sparrow, 3; Rook, 2; Snipe, 1; Kittiwake, 1. A few of the Warblers were taken the following spring, also one Swallow, but no Martins. I also received the wing of one Razorbill.

Migration of Birds in the Winter of 1877-78.—The immigration of birds on our north-east coast has, during the present season, in some respects been most peculiar, extending, as it has done, over a most unusual period. As a general rule, we expect the most laggard of our immigrants to have arrived by the middle of November. Any coming after this date are such as are driven southward by stress of weather from the more northern districts of our island, and as a rule do not come from the north of Europe. The exceptionally mild winter in Scandinavia has induced many to tarry long past their usual period for migration,—instance the Blackbirds and Fieldfares, which have come in pretty regularly at intervals up to the present date. Woodcocks have also been most erratic in their movements. Mr. Gätke, writing from Heligoland, Jan. 27th, says, "For some weeks we have had almost every day some Woodcocks, as also Blackbirds; the latter, however, are no exception, but the former very much so at this time." A very mild season over all the north of Europe, with occasional short bursts of severe weather, lasting only a few days, has sent the birds southward in great rushes, with long intervals of comparative cessation in the stream of migrants. From the 23rd to the 27th of January we had some rather sharp weather, frost and snow from N.W. and W.N.W. The consequence has, apparently, been a considerable migration of the laggards from Scandinavia, for Mr. Gätke reports as follows:—"January. Night, from 27th to 28th, *Turdus pilaris*, countless flights. 29th, from 9 a.m. and earlier to 4 p.m., *Colymbus septentrionalis*. An uninterrupted stream of birds from N.N.E. to S.S.W. passing to the east of the island. Constantly from eight to twelve in focus of glass. February 2nd, East in the morning; N. and N. by E. in the evening, *Turdus merula*, from twenty to forty, as I fancy from the north." In North Lincolnshire we have had scarcely any Snipe this winter, and I have only shot a couple, and these early in the season. Of Jack Snipe I have not seen a single example—not even in the local game-shops. The total absence of the latter is curious, as there are many favourite haunts in this district, where, in other seasons, I have never failed to find them. There are two printer's errors in my last notes in 'The Zoologist,' February, 1878: page 49, line 20—for "*Misletoe*" read *Mistletoe;* page 51—for "a *Harelda*" read *A. harelda.*—J. Cordeaux (Great Cotes, Ulceby).

[We should like to know what authority there is for using *Harelda* as a specific name. As a generic name, instituted by Leach, it is familiar enough.—Ed.]

The Falconry Club.—The attention of all who are interested in "Falconry" is invited to the organization, now in progress, of a Club having for its object the rescue from extinction of this noble sport of our ancestors, and the promotion and extension of its practice. For some months past there has been located in the Alexandra Park one of the largest establishments of trained hawks, falcons, and cormorants in Europe. The owner of these birds, Captain Dugmore (64th Regiment), well known as a practical falconer of twenty years' standing, yielding to the solicitations of several friends, has kindly consented, not only to allow his entire establishment to be made available, without limit, for the use of a Club, if one can be organized, but also to increase it to such a strength, and to place it on such a footing, as shall render it amply sufficient for all purposes for which it can possibly be required. This liberal offer on the part of Captain Dugmore has removed the great difficulty which has hitherto stood in the way of the formation of such Hawking Clubs as have been from time to time proposed, *i.e.*, the necessity of a very heavy outlay at starting, in getting together the necessary hawks and the professional falconers (an all but extinct race) to attend to them, as well as the incurring on the part of members of an amount of pecuniary responsibility for working expenses which few gentlemen might care to accept. In the present instance the liability of members will be limited to the amount of their annual subscriptions, as Captain Dugmore (who has consented to act as master, with the assistance of a deputy master to represent him in his absence), undertakes all pecuniary liabilities, and makes good all deficiencies. These conditions will place a Club in such an exceptionally favourable position at starting, that the opportunity appears to the promoters one that should not be allowed to pass; the more so, since Captain Dugmore has intimated his intention of breaking up his establishment, should the present attempt to revive the art and practice of falconry not meet with support. The position of Captain Dugmore as regards the Club will be similar to that of a master of foxhounds hunting a specified county with his own hounds and servants, assisted by a subsidiary subscription from the members of the hunt; but, as he wishes the Club to start as free and as little hampered as possible, he does not stipulate for the collection of any particular amount; although, while he will continue for the present to provide the *bulk* of the required funds, the scale on which the undertaking will be carried out must, of course, depend in some measure on the amount of support which the promoters are able to secure for him. As the working of such a Club as that contemplated must necessarily be attended with considerable expense, since extra falconers and extra hawks are required to render it constantly available for all kinds of sport, it is proposed that the annual subscription of members shall be *five guineas.* The election of members will be left to a committee of noblemen and gentlemen well known in sporting circles. Among the advantages to be enjoyed may be enumerated the following:—(1). Admission at all reasonable times to the headquarters of the Club, and the mews of the hawks in the Alexandra Park, and free access to the falconers, who will give practical instruction and assistance, when required, in everything connected with the management, training, and flying of hawks. Members can also have their own hawks taken care of temporarily at the Club headquarters, on payment of a fair fixed rate for their keep. (2.) Participation in hawking parties, which will be arranged to suit the convenience of members in any suitable localities that may be desired, such as the Isle of Thanet, for heron-hawking; Salisbury Plain, Dunstable Downs, the Berkshire Downs, Aldershot and Bagshot, for rook-hawking; possibly the Curragh for magpie-hawking; and perhaps meets may be also arranged on the Continent, to suit foreign members, but this can hardly be undertaken during the first season. (3.) Exceptional facilities in procuring hawks, a number of which will be to spare every year at the close of the regular season, since only particular favourites are ever moulted by Captain Dugmore. Members will have a preferential right to obtain such spare hawks at a much lower price than would be charged to outsiders. Members can also have their servants trained as falconers at the Club headquarters; though the resident falconers will of course expect, and be permitted to receive, a small fee for such services, involving, as they would do, much extra time and trouble. If desired, young hawks can be hacked for members at the Master's Hawking Lodge, in Ireland, which is kept up for that purpose. (4.) The use, at all practicable times, of hawks for flying to the lure in the Park. Individual members will also be permitted the use of a falconer and a few hawks or cormorants (for fishing) at their respective residences, whenever they can be spared without detriment to the interests of the Club. If sufficient support is forthcoming, the staff of falconers will be increased for this purpose, as it is thought that members possessing grouse moors or partridge shooting may be glad to enjoy a few days' game-hawking in the proper season.—As the hawking season commenced on the 1st of February, gentlemen who may be disposed to encourage the project, and join in reviving the grand old sport of "Falconry," are invited to communicate at once with—The Editor.

ON THE ORTHOGRAPHY OF THE GENUS CHROÏCOCEPHALUS.—In 1836, Mr. T. C. Eyton (Hist. Rarer Brit. Birds, p. 57) proposed "the name *Chroicocephalus* for a new subgenus under *Larus*, Linn., for the reception of such gulls as have the tarsi slender, thighs considerably denuded, hind toe very small, head only, or head and upper part of neck, dark-coloured in the summer state of plumage;" and in a footnote he added that the name was "derived from two Greek words, κροικος, coloured, and κεφαλη, head; signifying that the birds classed under that name have coloured heads." It is curious to trace the uncertainty that has arisen in the minds of some of the most learned ornithologists from this misprint of the first Greek word here cited. In 1839, Dr. William Jameson (Journ. Asiat. Soc., viii., 241), in a "report on the Museum of the Asiatic Society," mentions "*Larus kroikocephalus*" as referable to "the genus *kroikocephalus* of Eton" [*sic*]; and he remarks: "The name we have adopted is one which we have proposed to the Wernerian Society, being the generic one of Eton [*sic*] reduced to trivial value." The late Dr. T. C. Jerdon ('Birds of India,' 1864, p. 831) was so far misled by this violation of the laws of language and of nomenclature as to adopt "*kroikocephalus*" as a generic name. In 1841, H. E. Strickland (Ann. Nat. Hist., vii., 40) in a "commentary on Mr. G. R. Gray's 'Genera of Birds,'" simply remarks: "*Chroicocephalus* should be written *Chræcocephalus*," thus regarding the first two vowels as forming a diphthong. His untenable correction has been extensively adopted. In 1842, Professor Agassiz ('Nomenclator Zoologicus') was so confused by Eyton's Greek spelling as to derive *Chroicocephalus* from χροιά = colour, by a process comprehensible only to himself. In 1851, Dr. Reichenbach, in a "Systema Avium" prefixed to a copy of his "Handbuch der Speciellen Ornithologie," gives as a division of his family *Larinæ* the genus "*Chroiocephalus*, Eyton," as if misled by Agassiz' false étymon. In 1871, Messrs. Sclater and Salvin, in a "revision of the neo-tropical *Laridæ*" (Proc. Zool. Soc., p. 576), group the hooded gulls under the genus *Chroocephalus*, with the following explanatory foot-note: "Usually written *Chroicocephalus*, or *Chræcocephalus*, as amended by Strickland. But if, as we suppose, the derivation is from χϱώς, χϱοός, colour, this [*Chroocephalus*] is the proper orthography." But the need for all this conjecture vanishes when it is known that there exists an adjective, χϱωϊκὸς, meaning coloured. The larger lexicons, such as Stephanus' great 'Thesaurus Linguæ Græcæ' (9 vols., folio, Paris, 1865), gives the word as having been used by Justin Martyr about the year 150 A.D.; the exact reference to Otto's edition is vol. iii., part I., p. 204 B, and the quotation in full is ἐν τοῖς χρωϊκοῖς τὸ χρῶμα = "in coloured things there is colour." Nothing further is necessary to prove that Eyton's original spelling of his name *Chroïcocephalus* (if we add the marks of diæresis over the second vowel) is the only right one, in view of the meaning he intended to convey.—HENRY T. WHARTON.

GOLDEN ORIOLE IN CORNWALL IN THE WINTER.—I am not aware that there is any record of the Golden Oriole having been observed in the British Isles during the winter months. I think, however, although I have not seen the specimen myself, that I may mention the fact of one having been observed at Tehidy Park, near Redruth, the residence of G. L. Basset, Esq., a few weeks since, on the authority of Mrs. Basset, who informed me yesterday that a gentleman who was on a visit at Tehidy told her that he had seen in the plantations what he knew to be a Golden Oriole, in full brilliant plumage, and that it could not be mistaken by any one who knew and had seen the bird before.—EDWARD HEARLE RODD (Penzance).

[It is possible that the Green Woodpecker may have been mistaken for it.—ED.]

PIED WATER RAIL IN IRELAND.—Mr. Ripley, the birdstuffer, of Feasegate, York, has received for preservation a pied specimen of the Water Rail which was shot in Ireland on the 7th January last. There is a good deal of white on the back, as well as on the upper part of the neck and head, but very little on the breast. The tertial feathers are almost pure white. This species, I think, is not so subject as many birds are to variation of plumage, and the specimen referred to therefore seems noteworthy. While I am writing, I may add that Mr. Ripley has also received for preservation a Merlin and a Bittern, both shot in December in the county of York, the former near Wetherby, the latter near Castle Howard.—JAMES BACKHOUSE, Jun. (West Bank, York).

YOUNG RING DOVES IN FEBRUARY.—On the 1st February I shot four young Ring Doves, *Columba palumbus*, at Sparham. Three of these were very young, and one retained the long downy (nestling?) filaments on one feather in each of the upper wing-coverts. This strikes me as being somewhat unusual and noteworthy.—FRANK NORGATE (Sparham, Norwich).

WHITE JAY AND PIED LAPWING NEAR YORK.—A perfectly white Jay was shot at Dunnington, near York, during the harvest of last year, while feeding on the top of a sheaf of corn. Also a fine pied specimen of the Lapwing was shot at Cottingworth, near York, in the autumn of last year. Both specimens are now in my collection.—C. H. SHARP (York).

CURIOUS DEATH OF A KINGFISHER.—On the 7th of February I picked up a Kingfisher by the side of a small brook, having a "Miller's-thumb," *Cottus gobio*, firmly fixed in its throat, by means of the long dorsal fins. The fish had, of course, been swallowed head-foremost, and it was with great difficulty that I drew it out. The Dabchick, I think, much more frequently than the Kingfisher, loses its life in the above manner.—C. MATTHEW PRIOR (Bedford).

[On the 31st January last a Dabchick was brought to us which had been found choked precisely in the same manner, and the "Miller's-thumb" was still sticking in its throat.—ED.]

LARGE MACKAREL AT PLYMOUTH.—An enormous example of the common Mackarel, *Scomber vulgaris*, measuring two feet in length, thirteen and a quarter inches in girth, and four pounds and one ounce in weight, was taken in a drift net off Plymouth on February 9th. The colour and markings of this fine fish were of the ordinary kind, and very bright. Mr. Couch, in his 'History of British Fishes,' mentions that the largest he ever saw measured half an inch short of two feet; but Pennant speaks of one sold in London that weighed five and a quarter pounds.—J. GATCOMBE (55, Lower Durnford Street, Stonehouse, Plymouth).

SCYLLARUS ARCTUS AT PLYMOUTH.—A specimen of this rare British crustacean was brought up in a trawl off Plymouth, in the middle of January, and is now in the possession of Mr. Spence Bate, by whom it has been preserved. I have heard of but one other local example of this species having been taken, which I duly recorded some years ago.—J. GATCOMBE.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

LINNEAN SOCIETY OF LONDON.

January 17, 1878.—Professor ALLMAN, F.R.S., President, in the chair.

Mr. J. B. Kerswill, of Fairfield, St. Germains, Cornwall, was balloted for, and duly elected a Fellow of the Society.

Professor Owen, C.B., read a paper "On *Hypsiprymnodon*, Ramsay, a Genus indicative of a distinct Family (*Pleopodidæ*) in the Diprotodont Section of the Marsupials." The animal in question is an inhabitant of the Rockingham Bay district of Queensland. There it sparingly frequents the dense and damp shrubs bordering the coast. It is diurnal, and feeds on insects, worms, and tuberous roots, or palm-berries. These it grasps in its fore paws, and, sitting on its haunches, munches after the manner of the Phalangers. It breeds during the rainy season, viz., February to May. Both sexes have a musky odour, are alike in size, and somewhat over a foot long. This Rat Kangaroo (*Hypsiprymnodon moschatus*) Mr. E. P.

Ramsay, of Sydney, first named and shortly described in the 'Proceedings of the Linnean Society of New South Wales.' Professor Owen now supplements this by a fuller account of its skeleton and exterior conformation. Besides noticing the peculiarities in the dentition and skull, Professor Owen dwelt on the structural conditions of the hind foot, which, curiously enough, presents a modification between that of Potoroos and Kangaroos. He then instituted comparisons between these and the feet of the Ostrich group *(Struthionidæ)*, and speculated on the modifications of the five-toed feet revealed by palæontological researches, and as applicable to the *Hypsiprymnodon* and other living Marsupials, &c.

Professor St. George Mivart gave the abstract of a communication by him, entitled "Notes touching recent Researches on the *Radiolaria*." In this *résume* of present knowledge of this interesting group of lowly organisms, the history, progress, &c., and bearings of the group were duly entered into. These remarkable marine surface-swimming and microscopic objects he proposed to arrange after the classification adopted by Professor Ernest Haeckel, but considerably modifying his arrangement. The primary groups Professor Mivart would reduce from fifteen to seven, as follows:—1, *Discida*; 2, *Flagellifera*; 3, *Entosphorida*; 4, *Acanthometrida*; 5, *Polycistma*; 6, *Collozoa*; and 7, *Vesciculata*.

Several interesting botanical papers were next read, and specimens exhibited; among others, "On the Nutrition of *Drosera rotundifolia*," by Mr. Francis Darwin, in which he conclusively proves that this plant thrives on flesh.

Mr. J. R. Jackson showed a curious purse-like bird's nest, formed of wool and cotton pod, from South Africa, and forwarded by Sir Bartle Frere to Sir J. Hooker for the Kew Museum.

February 7, 1878.—Professor ALLMAN, F.R.S., President, in the chair.

Sir John Lubbock, Bart., read a paper, "Observations on the Habits of Ants, Bees, and Wasps," being his fifth contribution to the Society on this subject. The present notice is confined to Ants. In continuation of former experiments, he finds that Ants recognise old acquaintances, and speedily attack strangers. Their vaunted intelligence he regards as questionable: for example, in such cases where a thin circle of glycerine bars their access to honey which they already have visited by a paper bridge, for when the latter is taken away they do not pile up but a few grains of the surrounding earth, and thus easily cross the glycerine barrier. Notwithstanding the many observers on the habits of Ants, and the plentifulness of the nests of these creatures, it is still doubtful how their nests are commenced. Sir John's experiments show that the workers of *Lasius flavus* will not adopt an old queen from another nest. But, on the other hand, he has observed that the queen of *Myrmica ruginodus* has the instinct of bringing up larvæ and the power of founding communities. In this field close observation is yet wanted. As to the Ants intimating to each other their discovery of food, this does not necessarily imply any power of describing localities; for it seems that rather by a simpler sign do co-workers accompany each other to the discovered treasure. Sir John's experiments again rather negative the idea of these creatures using sounds to acquaint their fellows of any repast they may come across, no summons that he could make out being given to the brotherhood, though but a short distance separated them in the experiments thereon. The affection of Ants for their friends is out-balanced by their hatred of strangers. In instances specified, a few of each were kept prisoners in separate bottles, and prevented escaping or partaking of food by the mouths of the bottles being secured with wide-meshed muslin. Those Ants outside, running freely about, again and again excitedly endeavoured to attack the strangers; but they paid no heed to their friends, neither feeding them nor aiding them to get out, though all the while fiercely biting the muslin guarding the strangers. Further experiments prove that it is by scent far more than by sight the Ants are guided in following up tracks of food, &c., which has been shifted in position after their once having partaken of it, returned to their nest, and again sallied forth in search of the repast. Ants avoid light when this is thrown into their nests, and they then congregate into the darkest corners. Taking advantage of this habit, and by a series of ingeniously-contrived experiments,—wherein strips of coloured glass, in other instances shallow cells, containing coloured solutions, such as fuchsine, bichromate of potash, chloride of copper, &c., were used,—Sir John arrives at the conclusion that Ants, like Bees, are influenced by the sensation of colour; though in the case of the Ants its effects, probably, are different from those produced on the retina of man. In the Ants experimented on, a predominate preference was given by them to red; green followed; yellow came next; while to blue they appear to have a decided aversion. On the subject of the influence of colour much yet requires to be examined, viz., the effects of chemical rays, spectroscopic experiments, &c. The longevity of Ants, again, from what these series of observations elucidate, would appear to be greater than the generality of authorities admit; for some specimens of *Formica fusca* in Sir J. Lubbock's possession are now at least five years old, and still lively.

Mr. Thiselton Dyer made a brief communication on the so-called "Rain Tree," of Mogobamba, South America, which promised to excite as much interest amongst residents in hot, dry countries as the supposed anti-malarious properties of the "Fever Tree" (*Eucalyptus globulus*) had done amongst inhabitants of hot, wet ones. From information from Mr. Spruce it seemed probable that the "Rain Tree" was *Pithecolobium Saman*, and the so-called "rain" the fluid excreta of Cicadas which fed on the juices of the foliage. The whole phenomenon was comparable to the production of honeydew from the Lime by the agency of Aphides.

Then followed a paper "On the Shell of the *Bryozoa*," by Mr. Arthur W. Waters. The points he more particularly drew attention to were the great difference of the young and old cells, caused by a constant growth of shell substance, so that the older zooecia become closed up. This growth progresses at various rates. Passing through the shell are tubes filled with corpuscles of the chylaqueous fluid, which thus become oxidised. The supposed nervous filament of the colonial connection the author believes to be rather for the supply of material from one part of the zooarium to another. He further suggests that the varying thickness of the plates in the walls of the colonial connection should be used as a factor in specific determination, and especially would it be useful in comparing recent and fossil forms. There is a possibility of the avicularia and adventitious tubes being homologous, and helping to maintain the vitality of the colony when the polypides have disappeared.

Messrs. A. G. Agar and C. Berjeau were elected Fellows of the Society.

The President, having put the motion, it was unanimously resolved to present an address to Professor C. T. Ernest von Siebold on his approaching jubilee.—J. MURIE.

ZOOLOGICAL SOCIETY OF LONDON.

February 5, 1878.—Prof. MIVART, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of January, and called especial attention to a Japanese Wild Dog (an animal apparently allied to the "Dhole" of India and the "Dingo" of Australia), presented by Mr. Harry Pryer, of Yokohama, January 1st; and to a young Penguin (probably *Spheniscus Humboldti*), purchased January 24th.

Prof. Mivart read a paper entitled "Notes on the Fins of Elasmobranchs, with Considerations on the Nature and Homologies of Vertebrate Limbs," wherein the author detailed his dissections of the fins of Elasmobranchs, which dissections had convinced him that the paired and azygos fins are of similar nature. He represented them as having all resulted from the centripetal growth and evalescence of a primitively distinct series of cartilaginous rays developed in longitudinal folds, of which one was dorsal, one ventral, and two were lateral. He also advocated the view that the limb-girdles result from the further centripetal growth of the evalescing limb-cartilages, which growth seeks a *point d'appui*, the pectoral limb-girdles in fishes shooting upwards and downwards as well as inwards to obtain a firm support, and, at the same time, to avoid the visceral cavity. He contended that the archipterygium was not to be sought for in *Ceratodus*, which he by no means regarded as a primitive type of structure, but rather in *Raia*, and especially in the ventrals of *Polyodon*. He objected to Gegenbauer's view that the metapterygium formed the limb-axis of the cheiropterygium, advocating instead the propterygium, or, if not that, then the mesopterygium. He cited the varying conditions described as evidences of the presence of an innate intra-organic polar force as the main agent in morphological modifications.

A communication was read from Mr. W. A. Forbes, containing an account of the birds collected by the 'Challenger' Expedition at Cape York and on the neighbouring islands. The collection consisted of sixty-one skins, referable to thirty-eight species, all or nearly all of which belonged to well-known Australian forms, one or two only being uncertain on account of the immature condition of the specimens.

A communication was read from Mr. Francis Nicholson, in which he gave an account of a small collection of birds made in the neighbourhood of Abeokuta, West Africa. Amongst these was a new species of finch, which it was proposed should be called *Amadina Sharpei.*

The Rev. S. J. Whitmee read a paper on the mode of the manifestations of anger, fear, &c., in fishes, and on the use of their spines, as observed by him during his residence in the Samoan Islands.

Messrs. P. L. Sclater and O. Salvin gave an account of the collection of birds made by Professor Steere during his recent journey across South America, from Para to Callao. The 911 specimens obtained were stated to be referable to 362 species, of which five were described as apparently new to science, and proposed to be called *Oryzoborus atrirostris*, *Myiarchus semirufus*, *Furnarius pileatus*, *Capito Steerii*, and *Crypturus transfasciatus*.

Prof. Garrod read a note on the anatomy of the Binturong, *Artictis binturong*, and the fourth portion of his series of notes on the anatomy of Passerine Birds.

Mr. Howard Saunders read a paper on the subfamily of the *Larinæ*, or Gulls, being a monographical revision of the group, which he considered to consist of the genera *Pagophila*, *Rissa*, *Larus*, *Rhodostethia* and *Xema*, containing altogether forty-nine species. With regard to *Pagophila*, he drew attention to a structural peculiarity which appeared to have been previously unnoticed—*i. e.*, the junction of hallux to the inner toe by a serrated membrane. Mr. Saunders also remarked upon the occasional presence of a small but well-developed hind toe and claw in individuals of the Kittiwake (*Rissa tridactyla*) from Alaska.

A communication was read from Mr. Martin Jacoby, containing descriptions of some new species of Phytophagous *Coleoptera*.

Two communications were read from Lieut.-Col. R. H. Beddome. The first gave a description of a new form in the family of Tree-agames from the higher ranges of the Anamallays, proposed to be named *Lophosarea* *anamallayana*. The second contained the descriptions of some new species of *Uropeltidæ*, from Southern India.

February 19, 1878.—Prof. MIVART, F.R.S., Vice-President, in the chair.

The Secretary exhibited the skin of a fine adult Cassowary, which had been obtained at Wandammen, on the Eastern Coast of the Bay of Geelvink, New Guinea, and had just been acquired by the British Museum. The species to which it belonged was believed to be undescribed, and was proposed to be called *C. altijugus*, from its peculiar high-peaked helmet.

Mr. P. Geddes read a memoir on the mechanism of the odontophore in certain *Mollusca*. In this paper the view of Cuvier—that the movements of the radula depend upon those of the underlying cartilages—was substantially revived, arguments being adduced against the more recent theory of Professor Huxley, that it runs like a chain-saw, the cartilages merely forming a pulley-block. The use of bacteria as food by *Lymnæus* was also described by the author in this paper.

Professor A. H. Garrod read some notes on the anatomy of *Tolypeutes tricinctus*, and gave remarks on other *Dasypodidæ*. A new form of *Tolypeutes*, allied to *T. conurus*, was proposed to be called *T. Muriei*.

A communication was read from Mr. J. H. Gurney, containing notes on a specimen of *Polyborus*, lately living in the Society's Gardens.

A communication was read from Mr. D. G. Elliot, containing the results of his study of the *Pteroclidæ*, or family of Sand Grouse. Nine species of *Pterocles* and two of *Syrrhaptes* were recognized as composing the family.

Messrs. F. Du Cane Godman and Osbert Salvin gave descriptions of new species of Diurnal *Lepidoptera* from Central America.

A communication was read from Mr. R. Bowdler Sharpe, giving an account of a small collection of birds from the Ellice Islands.

Mr. Edward R. Alston read a note on the dentition of *Cuscus*.

A communication was read from Mr. T. F. Cheeseman, containing the description of three new species of Opisthobranchiate *Mollusca* from New Zealand.

Dr. F. Day communicated some remarks on the paper read by Mr. Whitmee at the last meeting of the Society on the manifestations of fear and anger by fishes.

A communication was read from the Marquis of Tweeddale, containing an account of a collection of birds made by Mr. A. H. Everett, in the Island of Negros, Philippines.

A second communication from the Marquis of Tweeddale contained the description of a new species of the genus *Buceros*, proposed to be called *B. semigaleatus*, from the Island of Leyle, Philippines.—P. L. SCLATER, *Secretary*.